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(54) Arrangement for expanding the abbreviated dialling memory of a radio telephone.

(57) The object of the invention is an arrangement by which the abbreviated dialling memory of a mobile phone (1) can be expanded. In the arrangement according to the invention, an external device (2) is connected to the control bus (3) of the mobile phone (1). The abbreviated dialling memory of the mobile phone (1) is copied into the memory of the external device (2). The abbreviated dialling memory used by the mobile phone (1) is expanded and divided into logic parts.

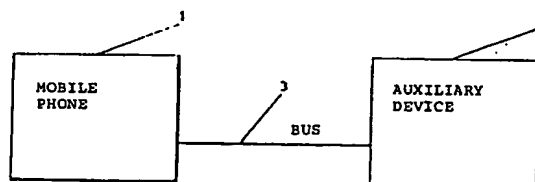


FIG. 1

The invention relates to radio telephones and devices connected to them.

The limited size of the abbreviated dialling memory has been a problem in prior art radio telephones. The capacity and use of the abbreviated dialling memory has been sufficient only for carrying out abbreviated dialling and associated functions. This arrangement has not satisfied the users of a radio telephone who require several different additional functions for the radio telephone.

In accordance with the invention there is provided a radio telephone in connection with an external memory comprising an internal memory adapted to allow data stored therein to be copied to the external memory and means for controlling dialling function of the radio telephone by accessing dialling information stored in the external memory, such that the internal memory is available for reprogramming to provide further operational functions for a user.

The invention alleviates some of the above drawbacks. The present invention provides an arrangement by which the abbreviated dialling memory can be expanded. In order to achieve this, a radio phone may be connected by a control bus to an external device. The abbreviated dialling memory of the radio phone is copied into the memory of the external device. The memory used by the mobile phone is thereby expanded and divided into logic parts for utilisation for further functions. The connection may be maintained for a substantial length of time to provide the advantages of the present invention over a reasonable period.

By down loading the contents of the abbreviated dialling memory of a radio telephone into an external memory the abbreviated dialling memory is free to be used for other applications. When access is required to the down loaded abbreviated dialling information this is available by way of a fixed connection to the external memory.

Although his connection is perfectly adequate for utilising dialling information it may be undesirably slow for some functions of the telephone. Once the contents of the abbreviated dialling memory have been down loaded the internal memory can be reprogrammed to provide these functions itself. This reprogramming may be achieved by keying in predetermined key stroke sequences on the key pad or by relevant instructions being down loaded from the external memory or from another external device in connection with the radio telephone.

The external memory may itself be programmable to hold the information required to programme the internal memory to provide predetermined functions. It may also be possible to enter abbreviated dialling information directly into the external memory for use via the control bus connection. Both or either of these functions may optionally, however, be provided by a device external to the radio telephone.

When it is no longer desirable for the radio telephone to be connected to the external memory, the contents of the internal memory originally down loaded may be retrieved if required. The internal memory can then be reconfigured to hold the abbreviated dialling information and/or any other information it had previously stored. The connection to the external memory can then be severed and the radio telephone can return to its initial condition.

The internal memory may be accessed by entry of a sequence of key strokes on the key pad of the radio telephone. This method may also be used to access the external memory. However, when the external memory forms part of a speech recognition unit it may be desirable for audio/vocal commands to be used for access to the external memory. This will be of particular benefit for in-car applications.

When an embodiment of the invention incorporating a speech recognition unit is used, it may be necessary for some of the internal memory of the radio telephone to be utilised to support this operation. Once, however, those memory locations are no longer required to enable operation of the radio telephone in speech command mode, the contents of the relevant internal memory locations can be copied onto the external memory thereby freeing more of the internal memory for further operational functions.

The invention is described in more detail in the following with reference to the appended drawings where:

Fig. 1 represents a block diagram of the arrangement according to the invention,

Fig. 2 represents a flow diagram of the arrangement according to the invention.

The solution according to the invention is described in the following with reference to Figs. 1 and 2 which show the implementation according to the invention.

Fig. 1 illustrates a block diagram of the arrangement according to an embodiment of the invention. An external device 2 is connected to a control bus 3 of a mobile phone 1. Thus the abbreviated dialling memory of the mobile phone 1 can be copied into the memory of the external device 2. The abbreviated dialling memory used by the mobile phone 1 can be expanded and divided into logic parts with the aid of the arrangement according to an embodiment of the invention.

Fig. 2 represents a flow diagram of the arrangement according to an embodiment of the invention. The contents of the abbreviated dialling memory of mobile phone 1 is first copied into the memory of the external device 2 connected to the control bus 3. The abbreviated dialling memory used by the mobile phone 1 is thereby expanded and divided into logic parts.

The user starts copying by pressing a given sequence into the mobile phone 1. The contents of the

abbreviated dialling memory of the mobile phone 1 are copied into the device 2 connected to control bus 3 of the mobile phone 1, such as a speech recognizer, a telephone answering machine, or a computer. After this the abbreviated dialling memory of mobile phone 1 can be reprogrammed.

The internal memory may be reprogrammed by keying in commands by way of a key pad or by copying information relating to the further operational functions of the radio telephone from the external memory. By holding abbreviated dialling information on an external memory and information relating to further operational functions of the radio telephone in the internal memory, delays in accessing functions accessed by way of the control bus are avoided for those functions held on the internal memory. In addition in, for example, speech recognition applications the advantages of holding telephone numbers and voice models on an external memory are also exploited.

Both the reprogrammed abbreviated dialling memory of the mobile phone 1 and the abbreviated dialling memories of the device 2 connected to the control bus 3 of the mobile phone 1 can be used with the aid of the mobile phone 1. The user brings into use the internal abbreviated dialling memory of the mobile phone 1 by pressing a given push-button sequence. Correspondingly, the user brings into use the external abbreviated dialling memories of the device 2 connected to the control bus of the mobile phone by pressing another push-button sequence. External devices other than the mobile phone 1 can also be used to program the memory of the external device 2 connected to control bus 3 of the mobile phone 1.

The arrangement according to an embodiment of the invention can, for instance, be used in speech recognizers, whereby those abbreviated dialling memory locations that include speech recognition can be used. The abbreviated dialling memory of the mobile phone 1 is transferred to the memory of the speech recognizer in the end phase.

The abbreviated dialling memory of the mobile phone 1 connected to the arrangement according to an embodiment of the invention can be reprogrammed. The reprogrammed abbreviated dialling memory can be used with the push-buttons of the mobile phone 1 and the memory of the speech recognizer can be used with speech commands. In the arrangement according to an embodiment of the invention this enables the expansion of the memory being used.

The contents of the abbreviated dialling memory can also be copied into the mobile phone from an external device.

The arrangement according to an embodiment of the invention can be applied to any device having a memory connected to the control bus of the mobile phone. This includes, by way of example a computer

or a telephone answering machine as well as a speech recognition unit as discussed above.

Claims

1. A radio telephone in connection with an external memory comprising:
an internal memory adapted to allow data stored therein to be copied to the external memory; and
means for controlling dialling function of the radio telephone by accessing dialling information stored in the external memory, such that the internal memory is available for reprogramming to provide further operational functions for a user.
2. A radio telephone according to claim 1 further comprising means for copying data stored in the internal memory to the external memory.
3. A radio telephone according to any preceding claim wherein the internal memory is reprogrammable by entry of sequences of instructions.
4. A radio telephone according to any preceding claim wherein the internal memory is reprogrammable from the external memory.
5. A radio telephone according to any preceding claim wherein the internal memory is accessed by entering a first predetermined sequence of instructions.
6. A radio telephone according to any preceding claim wherein the external memory is accessed by entering a second predetermined sequence of instructions.
7. A radio telephone according to any preceding claim wherein copying of the contents of the internal memory to the external memory is initiated on entry of a third predetermined sequence of instructions.
8. A radio telephone according to any one of claims 3, 5, 6 and 7 comprising a key pad for entry of a sequence of instructions.
9. A radio telephone according to any preceding claim wherein the external memory comprises a speech recognizer and wherein operation of the radio telephone is controllable by audio commands.
10. A radio telephone according to claim 9 wherein on completion of audio command operation of the

radio telephone, the contents of internal memory locations supporting audio control are transferred to the external memory of the speech recogniser.

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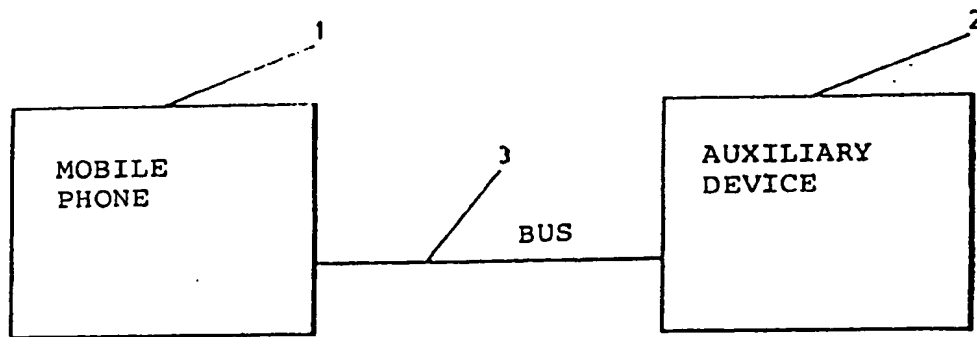


FIG. 1

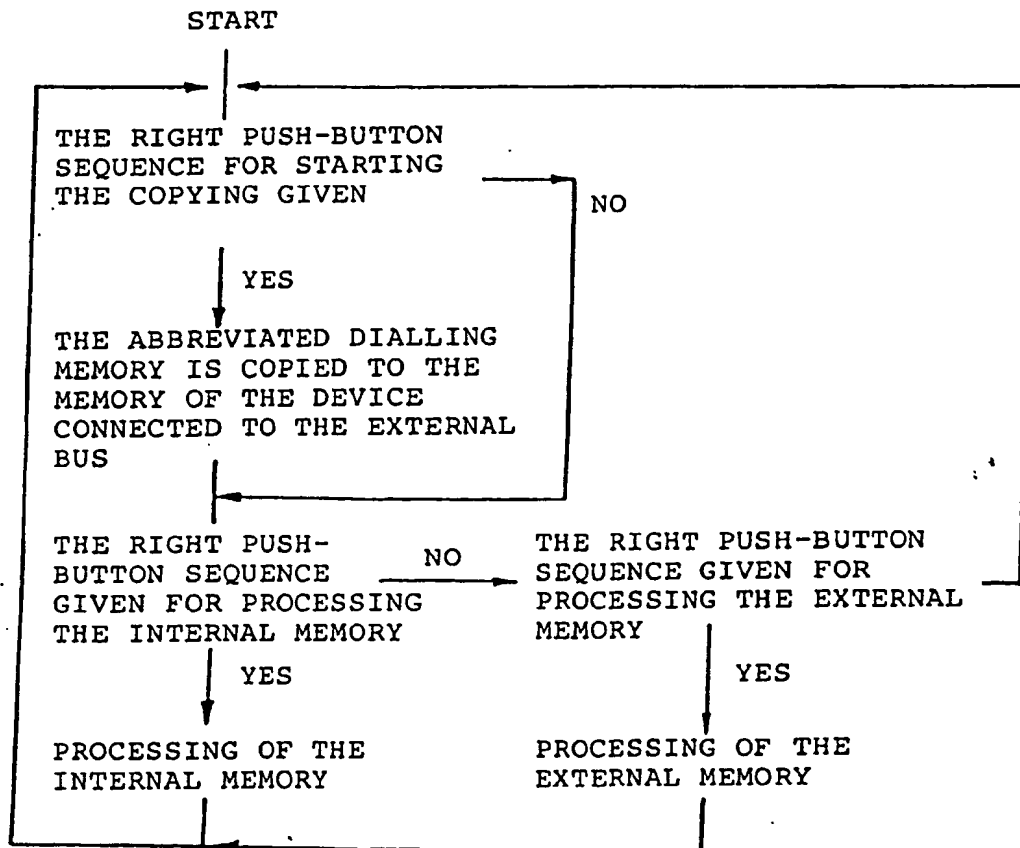


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 94302915.7
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	<u>WO - A - 90/06 648</u> (STORNO A/S) * Abstract; page 1, lines 5-40; fig. 1,2; claim 1 * --	1	H 04 M 1/274
A	<u>GB - A - 2 256 774</u> (NEC) * Abstract; page 1, line 1 - - page 3, line 24; fig. 1-3; claims 1-3 * --	1	
A	<u>EP - A - 0 456 260</u> (SHARP) * Abstract; column 1, line 5 - column 3, line 50; fig. 1,4; claim 1 * ----	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5) H 04 M
Place of search VIENNA		Date of completion of the search 30-06-1994	Examiner BADICS
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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